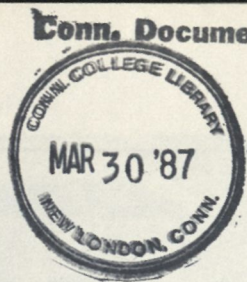


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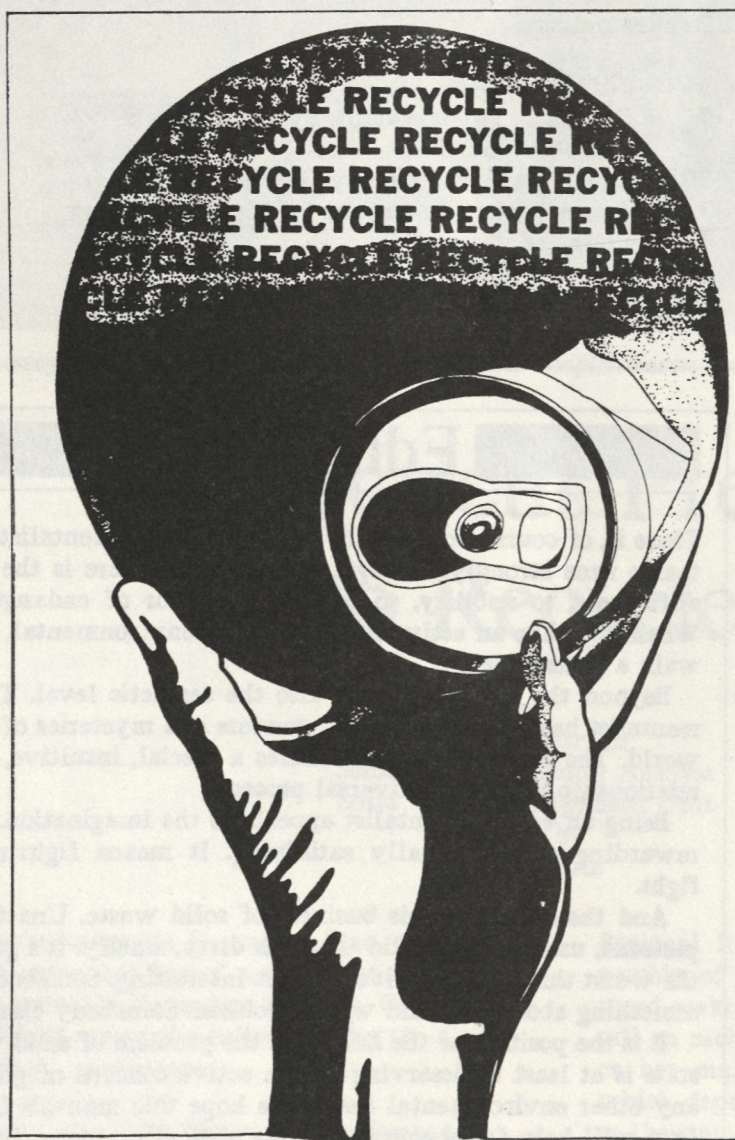


Citizens' Bulletin

Volume 14 Number 7 March 1987 \$5/yr.

The Connecticut Department of Environmental Protection

Recycling



Confronting the solid waste crisis.

Citizens' Bulletin

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Cover by Michael D. Klein

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Editor's Note

There is, of course, romance in being an environmentalist. The heroic theme runs strongly through what we do. There is the call to unselfishness, to nobility, to being a protector of endangered things. When you take an active role in matters environmental, you tend to walk a little taller.

Beyond the heroic, there is also the aesthetic level. The environmentalist has a feeling for the wonders and mysteries of the natural world. The environmentalist shares a special, intuitive, even poetic relationship with the universal process.

Being an environmentalist appeals to the imagination. It is richly rewarding and personally satisfying. It means fighting the good fight.

And then there is this business of solid waste. Unattractive, unpleasant, unromantic. Solid waste is dirty, smelly. It's garbage. And, the worst thing about it, it's just not interesting. Somebody should do something about the solid waste problem. Somebody else.

It is the position of the DEP that the problem of solid waste in our state is at least as deserving of the active concern of good people as any other environmental issue. We hope this month's *Citizens' Bulletin* will help focus energy on this critical problem. To really take responsibility for the world we leave our children means that we must be willing to deal with the unpleasant stuff. Maybe, finally, that's what being responsible is all about.

R.P.



The need for recycling in Connecticut is critical for the simple reason that land fill space will soon run out.

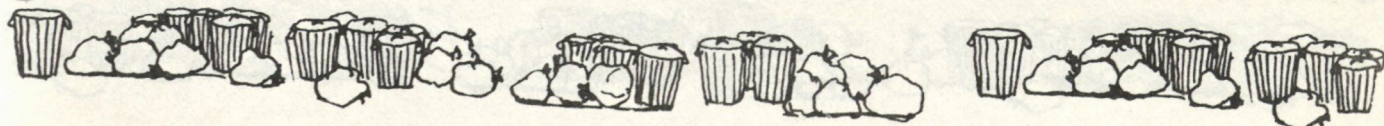
Connecticut Prepares to Recycle

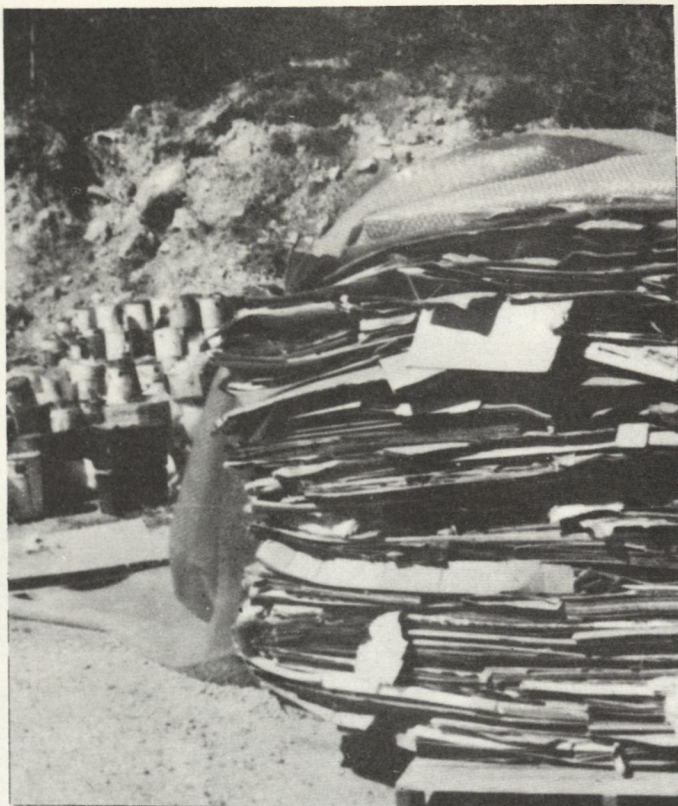
by
Toby Goodrich
Senior Environmental Analyst
Solid Waste Management Unit
Photos by
Julie Bemis

Connecticut's Statewide Recycling Plan, released early this year, has issued a challenge to every citizen of this state. On December 11, 1986, Governor William A. O'Neill wrote the following for the *Connecticut Recycles!* conference:

"The focus of the 1986 Statewide Conference on

Regional Recycling is to begin to form a partnership of state, local, and individual effort toward making recycling as effective as it can be. I call on each citizen to support the program in his or her municipality. Recycling is one program which depends on the cooperation of each person in the state."





The more material we can recycle, the less we will have to burn or bury.

Every resident in this state shares responsibility for our massive volume of mixed municipal solid waste. This trash and garbage is brought to landfills and has now grown into the mountains of junk that are all-too-visible around Connecticut's landscape. Even these landfills, however, will soon run out.

Part of the solution is to reach (or exceed) the statewide goal of reclaiming 25 percent of our waste through recycling within five years. The remainder of our "waste stream" — whatever cannot be reclaimed for scrap or composted — is to be incinerated at refuse-to-energy facilities. If that can be accomplished, then only residue from the incinerators and "by-pass waste" will require land disposal.

The first step in solid waste management in Connecticut is to recycle. Whatever we can reclaim through recycling is no longer waste that needs disposal through incineration or burial. The more we recycle, the less we must burn or bury.

The question is no longer, "Why recycle?" The question is, "How shall we recycle?"

On June 23, 1986, Session II of the Connecticut Legislature passed Public Act No. 86-1: "An Act Authorizing the Use of a Portion of the General Fund Surplus for the Fiscal Year Ending June 30, 1986, for a Municipal Solid Waste Recycling Program."

Under this law, 10 million dollars is to be set aside for the "municipal solid waste recycling trust fund" for implementation of recycling on a statewide level. A *Statewide Plan for Regional Recycling in Connecticut* was drafted by a joint effort of the DEP and the Municipal Solid Waste Recycling Task Force — a body created specifically by this Act.

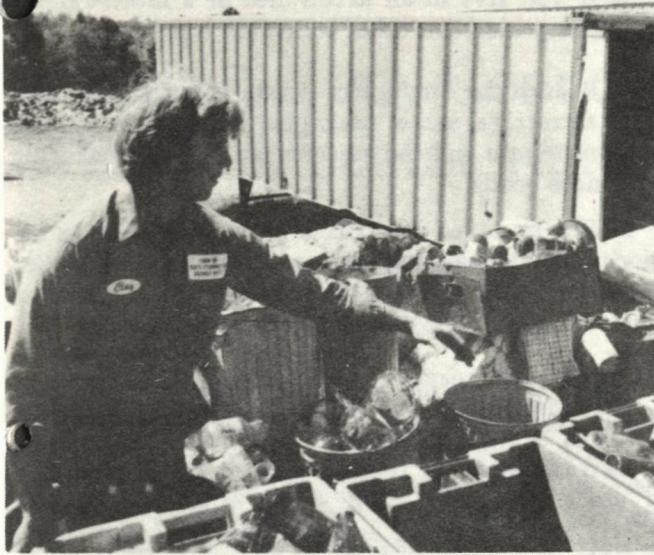
The law required that the plan be submitted to the governor and the General Assembly not later than January 1, 1987. The law further required that the commissioner of the DEP implement the program no later than April 1, 1987, if approved by the General Assembly. This is an extremely short period of time from conception to passage.

Connecticut's *Statewide Plan for Regional Recycling* was written during the final months of 1986, with input from elected officials, consultants in the field of recycling and marketing secondary materials, state legislators, representatives of state agencies, and private citizens. The document is meant to be a guide for the local and regional levels and an outline of the mechanics and the policies of recycling in this state.

According to the plan, the Municipal Solid Waste Recycling Trust Fund is the incentive for both local and regional initiatives. Grants will be awarded by the DEP to cover capital costs and public education campaigns. The money will be dispensed through regional recycling programs to help municipalities finance the capital costs of collections of presorted recyclables from residents and businesses and hauling these materials to the nearest regional center. It will also be used to pay 100 percent of the capital costs associated with developing the Intermediate Processing Centers (IPCs). At these centers, materials will be made ready for the market. Paper will be sorted and baled for the mill; glass will be color-sorted and broken down to cullet for the furnace; metals will be separated for different scrap metal uses. This preparation will be the job of the IPC. Citizens and local government will not be burdened with these complex responsibilities, or with becoming scrap materials brokers.

A single Intermediate Processing Center is planned for each group of municipalities whose combined population is no less than 250,000. Therefore, around seven IPC's might be necessary for the state's 3.2 million people.





At Intermediate Processing Centers, materials such as paper, glass, and scrap metal will be sorted and prepared for market.

lion people.

The ultimate determination of number and location of the IPCs will be made during the implementation of the plan over the coming years. There will be efforts to serve areas that have already formed into an *ad hoc* region or a regional authority for municipal solid waste management. There will be statewide, regional, and local efforts made to publicize the issue. A network will be established to link residential and commercial sources of recyclable wastes with the IPC at the regional center and, finally, with the materials market.

To accompany the plan, the DEP's booklet *Source Separation and Recycling Guide*, released in February, 1981, is being rewritten by the Solid Waste Management Unit. This guide provides practical advice on recycling on the municipal level. Specifically, this means how to most efficiently deliver the greatest quantity of material to the IPC. Waste reduction and composting information are also included.

Information on curbside collection containers and trucks or trailers, drop-off centers, mandatory recycling ordinances, and case histories of successful and failed local recycling programs is presented.

A successful recycling effort requires the informed consent and support of individual cit-



izens. Public awareness and participation are not earned by decree. This can only be brought about by a vigorous, intelligent, and articulate campaign of communication and education.

The DEP will do much of the organizing and conducting of the campaign through Community Environmental Education Program (CEEP). Developed by DEP's Information and Education Unit, CEEP is a network of groups and individuals from DEP, other state agencies, and environmental organizations for the purpose of information exchange.

This network supplements existing lines of communication between DEP's line units and the public. The pollution control and natural resources protection functions of the DEP normally include daily contact between technical and enforcement staff and the public. These contacts, however, usually involve those immediately concerned with a particular issue. This communication is relatively short-lived.

With a broader target audience and with longer term goals, CEEP is designed to reach the general public and to increase awareness and participation in environmental problem-solving.



A successful recycling effort requires the informed consent and support of individual citizens.

The commitment made early this year for a statewide system of recycling materials from our garbage will only be successful if it achieves public support. CEEP will be a means of earning this support.

On a regional scale, the developers of each Intermediate Processing Center must provide very clear direction for every participating municipality, specifically local government and public workers, refuse haulers, and local businesses, as well as townspeople.

On the local level, the target for information and education will be the individual homeowners and the local businesses. Each individual generator of waste will need to know what must be separated, how to go about separating it from the normal waste output, and when and how it will be collected. These people will also be interested in the economic reasons for making this effort.

The reader might ask, "What can I do right now?" We suggest the following:

1. Stay on top of all the latest information. Copies of the *Statewide Regional Recycling Plan* and the *Source Separation and Recycling Manual* are available from the Solid Waste Management Unit of the DEP (566-5847). The *Garbage Gazette* is a monthly newsletter published by the Solid Waste Management Unit of the DEP. Subscription is free.

Stay in touch with any regional organizations in your area, such as a regional resource recovery authority, a regional planning agency, council of governments, or regional chapters of League of Women Voters, Connecticut Audubon, and others.

Stay in touch with your town's local committee on solid waste management, public works department, or selectmen's office.

Get to know your trash hauler. You might be surprised how much he or she knows about the art and science of waste management.

2. Prepare to meet the minimum requirements for waste segregation prior to trash collection in your town. If you live in a single-family home, your routine might resemble the following: Put all bottles and cans in a container separate from your regular trash can. No removal of labels or washing will be required, unless you want an odor-free container in your kitchen. Separate newspapers to be bagged or bundled. Separate whatever else is routinely collected (mixed plastics, for example). On collection day, put the container of mixed bottles and cans at the curbside alongside

your trash and bundles of papers.

3. If you live in an urban area or a multi-family home, stay alert for other collection strategies.

4. Reduce the amount of waste you generate. Perhaps attractive, excess packaging of goods is not important to you and can be forsaken for less packaging and more goods.

5. Get involved in local efforts (and perhaps regional efforts) to compost leaves, clippings, and other organics.

We in Connecticut have no choice today but to change our old habits of creating staggering volumes of waste and dumping it onto the ground. We are running out of time and we are running out of space. The solid waste crisis must be addressed wisely, cooperatively, and responsibly. And it must be addressed now.

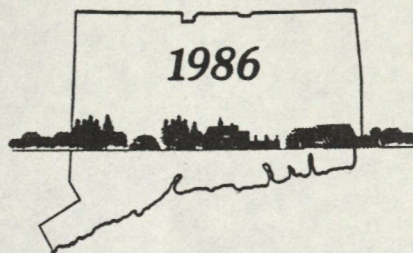


The solid waste crisis in Connecticut is before us right now. We have no choice but to act with responsibility and speed.



Report from Connecticut's Environmental Watchdog

by
Leslie Lewis
Citizens' Participation
Coordinator



The Council on Environmental Quality, Connecticut's independent environmental "watchdog," has issued its annual report for 1986. As usual, the report gives an overview of the state's environmental health, with a focus on issues of specific importance. Inland wetlands and solid waste were the areas of most concern to the CEQ.

Last month's *Citizens' Bulletin* covered the subject of wetlands in some detail. These important parts of the state's ecosystem are being lost at a rate of up to 1500 acres annually. The CEQ is concerned that municipal wetlands commissions, which regulate local activities affecting these areas, are facing tremendous pressure in light of Connecticut's development boom. As land values increase and buildable lots are snapped up, wetlands begin to look attractive as building sites. Local commissions, which are made up of volunteers, are often caught in a tangle of legal, environmental, and political issues which complicate the permitting process. The CEQ has offered several suggestions for improving the state's current system of wetlands management.

The first recommendations in the report involve strengthening the DEP's Water Resources Unit, which oversees the wetlands program. DEP staff currently regulate activities in 13 towns which have no municipal commissions. According to the CEQ, this seriously hampers the DEP's ability to provide assistance to the 156 towns which do manage their own wetlands. The Council suggests that the 13 towns be re-

quired to establish their own commissions; those that don't would be charged for DEP's services. In addition, at least six staff positions should be funded for the Water Resources Unit so that they can provide more technical assistance to local wetlands agencies. Two of these positions should be for staff attorneys who can provide legal help to commissioners.

Another area which the CEQ has determined to be in need of improvement is enforcement of existing laws. The Council recommends several statutory changes which would give local agencies and the DEP more power to impose penalties. The DEP would also be given more authority to temporarily revoke a town's authority. Local commissions would be required to report their activities to the DEP in order to maintain records on the state's wetlands.

Perhaps the most important suggestion in the report concerns the education and training of local commissioners. Most of these volunteers are lay people without technical backgrounds. In a survey which was prepared by the CEQ and sent to inland wetlands commissions, 80 percent of those responding said that they would like to have more training available to them. While the DEP and other organizations have held periodic conferences and workshops, there is no ongoing program to provide information and education to commissioners. The CEQ feels that two new staff people should be added to the Water Resources Unit for education and

training.

There are several other recommendations in the report which would, in the Council's view, improve the regulation and management of wetlands around the state. While implementation of these suggestions would require increased funding for the DEP, the CEQ feels that the benefit of preserving wetlands outweighs the cost.

The CEQ annual report also tackles the issue of solid waste management. The report reflects a realization that landfills are a necessary part of any solid waste management plan. In order to preserve and extend landfill life, the Council advocates mandatory recycling and waste reduction as management strategies. More staff should also be added to the Solid Waste Management Unit to enable them to keep up with increasing enforcement, inspection, and planning activities.

While the CEQ report is a very serious document, there are lighter notes as well. The "Environmental Almanac" section has statistics ranging from a comparison of people per square mile (Japan - 840; Taiwan - 1280; and Fairfield County - 1290) to reported bear sightings for the state (24 in 1986). All in all, the annual report is a valuable document for anyone interested in Connecticut's environment.

The Council on Environmental Quality encourages citizens to obtain and read the report. For a copy, please contact Karl Wagener, Executive Director, Room G4A, State Office Building, Hartford, CT 06106 or call (203) 566-3510. ■



The snowy owl, from the Allen Collection, Connecticut State Museum of Natural History. The collection is priceless, and the birds are considered works of art. (Photo: Carl W. Rettenmeyer)

Birds for All Seasons

by
Maryon Attwood
 Associate Director
 Connecticut State Museum
 of Natural History

In 1912, when the red-shouldered hawks flew north over his home near the Connecticut River, Gene Allen would know that spring had finally arrived.

Today, Allen — like most of us — rarely sees a red-shouldered hawk in the wild. But, because he has donated his irreplaceable collection of nearly 300 large, mounted birds to the Connecticut State Museum of Natural History in Storrs, thousands of people are getting their first glimpse of a golden eagle, a great blue heron, an osprey, and every species of hawk and

owl to be found in the state.

This collection, the envy of New England, means that bird lovers do not have to wait until winter to see a snowy owl or until some other season to see a prized bird, but can study them easily during any season. Many of the birds, classified as "rare" or "declining" in Connecticut, are now difficult to find in nature.

The collection is priceless, as laws now prevent the hunting, collecting, buying, or selling of any of the birds of prey that were donated by Allen. The col-

lection is also of outstanding quality. "You can go to any museum in the world and you won't find any more beautifully mounted birds," observes James Slater, a former state ornithologist. "Allen's birds are works of art."

Allen's life-long home in Winchester, New Hampshire, is situated along a "flyway," a region with strong air currents that help migrating birds soar without having to move their wings. Allen, at 84, has watched his feathered friends there for nearly a century.

"The water was nice and clear, and there were trout in the brook," said Allen of his boyhood experiences with nature. "All kinds of birds could be found alongside the river, including hawks that were hunting. We used to see many other animals there, too—it was quite a place for a young fellow."

In the 1930s, Allen noticed that fewer birds, including the red-shouldered hawk, were migrating over his home. He heard about the mass slaughter of hawks as they glided along the flyway at Hawk Mountain in Pennsylvania. Fearing that they would be wiped out completely, he decided to preserve what he could by making a complete collection of North American birds of prey.

Allen collected for only a few years. Once he had most birds of prey, he devoted the rest of his life to creating displays that would vividly demonstrate their natural habitat and way of life. He painstakingly chose tree stumps and branches for perches and painted scenes for the exhibit cases, sometimes grouping several birds in striking positions, as he had seen them in the wild.

In one display, a male and a female snowy owl are mounted against a painted backdrop of a mountain and an ice-packed river in the red glow of the Arctic sunrise. In another case, a golden eagle sits on a rocky ledge atop a mountain, awaiting the arrival of a mate who is soaring in the background. Other vivid exhibits show a northern goshawk attacking a pheasant in a scene with a wide river bounded by the gold and red trees of autumn, a young albino porcupine about to enter a cave on a mountainside, and two fawns in a forest.

Children who come to the Museum are especially fond of the saw-whet owl, which stands only eight inches high, as well as the screech owls in their red and gray color phases.

Also, because many of the displays give locality data, they are important for research. But, as James Slater pointed out, their primary value is for public education. "They are superbly mounted birds, able to



James A. Slater, professor of ecology and evolutionary biology, with a short-eared owl, one of the some 300 birds in the Allen Collection. (Photo: Dean Batchelder)



F. Eugene Allen, and a snowy owl. Allen devoted much of his life to displaying meticulously-crafted displays of birds in their natural habitat. (Photo: Carl W. Rettenmeyer)

inspire the interest of children and adults, eminently worthy of study by novices and experts," he said. Artists have come from some distance to use Allen's birds as models.

"One more screech owl isn't necessarily valuable as a study specimen, but Allen's birds are as good as they come. His birds allow people who are already interested to learn more about how to watch them in the wild by studying identification marks and other aspects," said Slater.

The big birds, such as the owls, also help to teach conservation by emphasizing their role in controlling the population of rodents and other pests.

The birds came to Connecticut through an unlikely series of events. As he passed his 80th birthday, Allen began to look for another home for his collections. The displays took up most of his 200-year-old house and were becoming burdensome to maintain. He asked his nephew, Richard Platt, to help him find a new site for his treasures.

Platt contacted Carl W. Rettenmeyer, director of the Connecticut State Museum of Natural History, and an appointment was immediately set up with Allen. Rettenmeyer drove to Winchester, New Hampshire, with a portable typewriter in his car, evaluated the collections, and typed up an agreement to bring Allen's magnificent birds to Connecticut. "All the birds in this collection might be found in Connecticut during some part of the year," said Rettenmeyer.

Obtaining the collections was just the beginning of a long-term commitment. "Collections of this kind require constant care and maintenance; they must be

kept free of pests and dust; light and temperature must be controlled so the specimens are not damaged. A great responsibility goes along with having collections that can't be replaced," commented Slater.

As part of its efforts to maintain and improve the collection, the Museum will soon display a barn owl and an American peregrine falcon; both died encountering modern buildings. Public support for the Museum has constantly and dramatically grown. In 1985, it was established as an official agency of the State of Connecticut, which provided funding for the first time in 1986-87. As state and private support increases, the Museum will be able to expand its hours and improve its exhibits of birds and other animals.

The Allen Collection at the Connecticut State Museum of Natural History is located in the Wilbur Cross Building at the University of Connecticut. The Museum is open approximately six days per month, every Monday from 12 noon to 4 p.m., and the second Saturday and Sunday of each month from 1 to 4 p.m. Guided tours can be arranged on any day by calling (203) 486-4460.

The mandate of the Museum is to preserve Connecticut's natural heritage and enhance science education in the state. Slowly the red-shouldered hawks are returning to our state, where they may again become harbingers of spring. Meanwhile, the Museum hopes that the beauty of Allen's birds will help prevent further destruction by man. For more information, write: Connecticut State Museum of Natural History, University of Connecticut, Box U-23, Storrs, CT 06268.



This osprey is one of the birds preserved in the complete collection of North American birds of prey. (Photo: Carl W. Rettenmeyer)



Fighting the Big Fires

by
Kim Nauer
 Environmental Intern
 Photos by
Russ Alden

Under a cooperative agreement with the U.S. Forest Service, members of the Connecticut DEP have been taking part in large forest fire-fighting operations in western states. The program not only makes it possible for trained personnel to bring their abilities and expertise to emergency situations at very short notice, it also provides a unique training experience.

"We are improving ourselves and helping others at the same time," says Ronald Kramer, fire officer for the state's Eastern District and supervisor of the emergency assistance forest fire program. "This program is an invaluable tool for the 19 members of the state's fire fighting team. The skills learned fighting the big fires in California, Oregon, and other states can be used right here in Connecticut."

Clearly proud of his crew, Kramer indicates that Connecticut fire fighters have won respect from other states. "People are surprised that our teams are so well trained and experienced. They automatically think

that a small state like Connecticut, which doesn't have large national forests, can't produce good fire fighters. Often, we are the ones who teach them."

Each year, the DEP's Bureau of Forestry provides a training course for its own forest fire fighters and members of the Rhode Island-Connecticut (RI-CONN) U.S. fire emergency team. Kramer warns his students about rampaging fires, shifting desert winds, and heat exhaustion. There are also lessons on how to avoid heat stroke, get in top physical condition, and survive if the unit position is suddenly overrun by fire.

"Sometimes you'll be hiking for hours before you even begin working," Kramer tells his students, "and then you may be working a 24-hour shift, swinging a 'pulaski' (a heavy, short-bladed pick-axe). You may be fighting flames that are as high as the trees, advancing two miles in 15 minutes."



Umatilla National Forest in Oregon: Connecticut firefighters helped fight this blaze in August, 1986. A lightning detection device indicated that in one night, there were 35,000 lightning strikes, resulting in 39 separate fires. Nine people lost their lives in this fire.



Connecticut firefighters have won the respect of their counterparts in other states.

During the fire season, temperatures in western states often rise above 100 degrees. It is a strenuous job, says Kramer, and during peak periods, firemen may lose three quarts of sweat an hour. And, needless to say, there is risk involved; 44 forest fire fighters died last year in the United States due to duty-related injuries and illness. Happily, no Connecticut fire fighter has even received a serious injury while on duty.

The story of good fire fighting is, of course, a story of serious and disciplined professionals doing a job for which they have been well prepared. Danger, while it must be kept clearly in mind, is kept to a minimum by good planning and leadership. That there have been no serious mishaps on the team is not accidental; it means somebody knows what they're doing.

On the other hand, every veteran must have at least one war story to tell. Kramer recalls the time he was supervising a crew in California, when he was given some misinformation, and suddenly found himself and his men on a military reservation, on a live artillery range. "You can't say this is a boring job," laughs Kramer.

Fighting the western fires, however, is only part of the Connecticut forest fire fighter's job. Connecticut loses about 3,000 acres a year to over 1500 fires. These fires, however, are different in character from the western fires. Our cool, moist climate rarely

"We are improving
ourselves and
helping others
at the same time."

Ronald Kramer



While firefighting is a hazardous job, careful planning and good leadership have contributed to an excellent safety record.



Sometimes called upon to work 24-hour shifts, firefighters require physical strength and endurance.

allows the size and intensity of the western fires. Connecticut's largest fire in 1985 burned only 400 acres, and this was during an exceptionally dry season.

According to Kramer, the majority of Connecticut's forest fires do not have to happen. Forty-five percent are deliberately set. And this figure doesn't include those started by children — that is an additional 15 percent.

"These fires are set by people who like the excitement of seeing all the fire fighters come out, or who have a grudge against their neighbors. Some are volunteer fire fighters who get bored."

The penalties for setting forest fires in Connecticut range from a \$200 fine to a prison term, if intent can be proved. "This has been generally hard to prove," says Peter Babcock, state forest fire control officer. "You have to have someone see the person who set the fire. Usually there's a group of people and nobody will tell who actually did it."

Kramer said he suspects that children are blamed for more fires than they create. Fire marshals or wardens may simply assume children were the cause if any were spotted in the area before the fire.

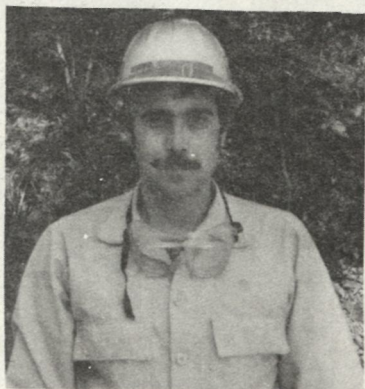
Wildfires are also commonly caused by equipment sparks, railroad fires, and campfires. Lightning, which is the cause of many fires in drier areas, is responsible for only a tiny percentage here in Connecticut.

After members of the RI-CONN team returned two summers ago from a 53,000 acre fire near Big Sur, California, they were commended by Governor William A. O'Neill for a dangerous job well done.

"State employees serve the public in many ways, but few have the interest, dedication, technical skills, and physical ability to undertake the arduous task of fire fighting," Governor O'Neill wrote. "Only those who have fought a western fire can appreciate the heat, steep topography, explosive fuels, and the danger of heat exhaustion involved. Please accept this letter of congratulations as an indication of my admiration and appreciation for the successful completion of a difficult and dangerous task."

It's not difficult to see why Ron Kramer is so proud of his boys.

And, what it's really like.



Steve Arcell is a Maintainer III with the DEP's Bureau of Forestry. His permanent duty station is at Cockaponset State Forest. He is also a member of the emergency fire fighting group.

"Working on the big fires in other parts of the country is an opportunity to hone your skills on a grand scale. The long, 14- to 16-hour shifts are challenging physically and mentally. Mental conditioning is very important, because you have to keep your cool in difficult situations. You work close together with other people under demanding conditions, and you have to keep your morale up."



James Bender has been with the DEP since 1973. He is a resource technician with the Bureau of Fisheries, and is on call as part of the emergency fire-fighting team.

"To me, this job is an adventure. You hear about the fires on the news, and it's exciting to think that you might be called up. One day you're in the office, the next day you're in the wilderness. Danger is always a part of it, but the biggest danger seems to be poison oak. There's a real feeling of teamwork, of people looking out for each other."

A View from the Capitol

A Distinguished Task Force Looks at Recycling

by
Ellen O'Meara

Editor's note: The author was associated with DEP's Solid Waste Management Unit as source separation consultant before being retained by the Municipal Solid Waste Recycling Task Force in August, 1986, as a private consultant.

Public Act 86-1, which created the 10-million-dollar Recycling Trust Fund, also called for the creation of a Municipal Solid Waste Recycling Task Force. Appointments were made to this Task Force by the state Legislature with advice from DEP. The Task Force comprised the following individuals, all of whom have records of commitment and interest in recycling:

Representative David Anderson — Chairman of the Task Force; responsible for the acts creating the trust fund.

Representative Peggy Beckett-Rinker — former member of the Legislature's Environment Committee.

Joseph Belanger — member of the Energy Division, Office of Policy Management.

Senator Eric Benson — former member of the Environment Committee.

Marian Chertow — President, Connecticut Resources Recovery Authority.

William Collins — Mayor of Norwalk.

Joey Corcoran — Assistant Director of Environmental Affairs, Connecticut Audubon Society.

Neal Crowley — member of the Department of Economic Development.

Senator Richard Eaton — Chairman, Program Review and Inventory Committee.

William Kilpatrick — Vice President, Connecticut Bank and Trust, New Haven.

Dennis Murphy — First Selectman of East Lyme.

Edward Steward — Public Works Director, Town of Waterford; Chairman, Southeastern Connecticut Regional Resources Recovery Authority.

Eugene Williams — Second Selectman, Town of Litchfield.

The group met on a bi-weekly basis from August through December, 1986, in order to help shape Con-

necticut's recycling future.

On September 29, 1986, the Task Force toured the very effective drop-off recycling program operated at the North Stonington landfill, and the multi-material processing center owned by the Town of Groton and operated by Resource Recovery Systems, Inc. Task Force members observed first-hand two very different approaches to recycling.

The North Stonington program operates as a drop-off system, depending entirely on the cooperation of residents to bring recyclables to the center. Fortunately, because about two thirds of North Stonington residents bring all their trash to the landfill themselves anyway, a drop-off approach is viable. The remaining third of the population have private trash collection service and would have to make a special trip to the landfill if they wanted to recycle. Recently, however, North Stonington passed a mandatory recycling ordinance for all of its residents. The town is working closely with local private haulers in order to bring them into compliance with the program.

The processing center at Groton is the model Intermediate Processing Center (IPC) that was the guide for the recycling efforts in New Jersey, Massachusetts, and Rhode Island. The Groton IPC receives co-mingled recyclables (mixed bottles and cans and mixed waste papers) and prepares these materials for the market. This operation is designed to improve the chances for successful collection from the households. Residents are required to do only a minimum of sorting, and they place their recyclables at the curbside alongside their trash. This "convenience factor" enhances individual participation which, in turn, boosts recovery levels. As many local recyclers will confirm, volume and quality of materials are the key to successful marketing.

Facilitating collection at the household level and gathering high volumes of materials at a center where scrap materials are professionally processed and marketed are the benefits of this regional system. The

drop-off program at North Stonington is a smashing success, due largely to the efforts of Selectman David Birkbeck to promote recycling. This is an example of a single individual's effort becoming the backbone of a town's recycling program. In more typical situations, the regional system will stand a better chance of success by virtue of its distribution of work and responsibilities among many.

It is important to remember that at the bottom of Connecticut's commitment to recycling is a requirement that all residents and businesses change how they routinely dispose of waste. This will not be easy. In the past, residents had to bag their trash and place it at the curb or in the proper receptacle. Much of what recycling will require of residents will not be much different and can become as routine as current household disposal practices. The Task Force and the DEP agreed that mandatory ordinances are necessary as an important show of commitment from a municipality, but that emphasis should be placed on education and not enforcement.

In determining what percentage of the municipal solid waste stream should realistically be targeted for recycling, the Task Force concluded that Connecticut would join Massachusetts and New Jersey in setting a statewide goal of 25 percent. To reach this level,

waste reduction, composting, and participation from the commercial/industrial sector must supplement the household efforts. It will take more than the collection of bottles, cans, and newspapers from residents to achieve a significant impact on Connecticut's waste system.

More than 100 of Connecticut's 169 municipalities are already committed to a planned or operating waste-to-energy facility. Investigation into contracts and tonnage commitments made by Connecticut towns and cities reveals that the majority of these 100 municipalities will be in a good position to participate in recycling programs. It was agreed that DEP would provide 100 percent capital funding for IPC development as well as assistance to municipalities for public education and modifications of their collection systems to support the IPCs. There was also a consensus that more money will be needed when the present allocation of nearly 13 million dollars is exhausted over the next few years.

The Regional Solid Waste Recycling Plan was submitted to the governor on December 31, 1986.

For more information about the Task Force meetings and proceedings, contact the Environment Committee at the State Capitol, where all Task Force records are on file.



*The Intermediate Processing Center at Groton has been the model for work done in other states.
(Photo: Robert Paler)*

DEP Receives Award for Environment/2000

by
Tessa Gutowski
Senior Environmental Analyst
Water Compliance Unit



John Fleming, Chairman of Connecticut's Commission on the Future, presents award to Robert E. Moore, Assistant Deputy Commissioner; Jim Murphy, Principal Environmental Analyst; and Tessa Gutowski, Senior Environmental Analyst.

The Commission on Connecticut's Future presented its first "Foresight Merit Award" to the DEP, in acknowledgement of the initiation and development of an innovative environmental goal-setting process known as *Environment/2000*. A letter of congratulation from Governor O'Neill was also presented to the DEP at the ceremony.

Three years of effort on the part of DEP staff, as well as input from both the Commission on Connecticut's Future and concerned citizens of the state, have gone into the production of the *Environment/2000* document. The document articulates a comprehensive and coordinated plan for the state's environmental goals and management strategies to the year 2000 and beyond. The document identifies 42 diverse environmental issues, including "tidal wetlands," "forests," "toxic water pollutants," "hazardous waste," and "natural heritage." In addition to goals and objectives, there are long-term strategies which have been selected as necessary in achieving the designated goals.

Accepting the award was Robert E. Moore, Assistant Deputy Commissioner of the DEP, who thanked John Fleming for providing the "spark to get this most rewarding process under way." The DEP re-

leased the draft *Environment/2000* document in May 1986, held a series of regional workshops in June, sponsored a Governor's Conference in October which was attended by over 340 people, and formed a 70-member advisory committee which has worked on revising the document since last November. The DEP expects a final edition of *Environment/2000* to be published by June, 1987.

"The DEP intends to use the document as the strategic environmental plan to ensure that the state's natural resources management and pollution control programs move forward in an orderly and effective manner to attain the goals established," said Moore.

"The Commission is gratified that the DEP has taken the initiative to establish a management approach wherein the public and public interest groups assist in developing and reviewing environmental goals and implementing departmental strategies," said Fleming. "We hope that the Commission will be able to establish equally productive relationships with state agencies in future years," Fleming added. ■

Note: Next month's Citizens' Bulletin will contain a further update on the current status of Environment/2000.

They're common, ordinary objects, found around the house, and they're non-recyclable.

by
Lois Hager
Recycling Coordinator
Solid Waste Management Unit

Theoretically, almost everything is recyclable. As a practical matter, however, this is not always realistic. The following is a list of common waste materials generated by a single household in the course of a few weeks. These materials cannot be recycled. It is significant that disposable products and modern packaging represent most of this unrecyclable waste. Connecticut's citizens can contribute to the state's recycling effort by insisting on durable rather than disposable goods and on reduced and recyclable packaging.

1. Materials which cannot be separated

Soiled paper products:

- Used teabags and coffee filters
- Used disposable diapers
- Used cupcake wrappers
- Margarine and butter wrappers
- Soiled paper towels and napkins
- Soiled newspapers
- Soiled vacuum cleaner bags

Plastic, wax, or chemically-coated paper or cardboard:

- Fabric softening papers for dryers
- Waxed paper
- Dairy product cartons
- Butter boxes
- Coated paper plates and cups
- Coated laundry detergent boxes
- Foil/paper-bonded soup, gravy packets
- Individually-wrapped juice cartons

2. Materials which are too labor-intensive to separate

- Cardboard dishwasher detergent boxes — the metal pouring-spout and foil-covered wrapper must be removed

- Pen and pencil wrappers — corrugated cardboard and plastic must be separated.
- Parmesan cheese boxes and frozen juice containers — metal or plastic ends and treated outside paper must be removed from cardboard
- Plastic toys — metal parts could be recycled if separated from plastic
- Gardening tools (broken hoses, trowels, sprinklers) — metal parts could be recycled if separated from plastic or wood

3. Materials for which recycling technology does not yet exist

Plastics other than PET (polyethylene terephthalate) soda bottles, and HDPE (high-density polyethylene) milk jugs

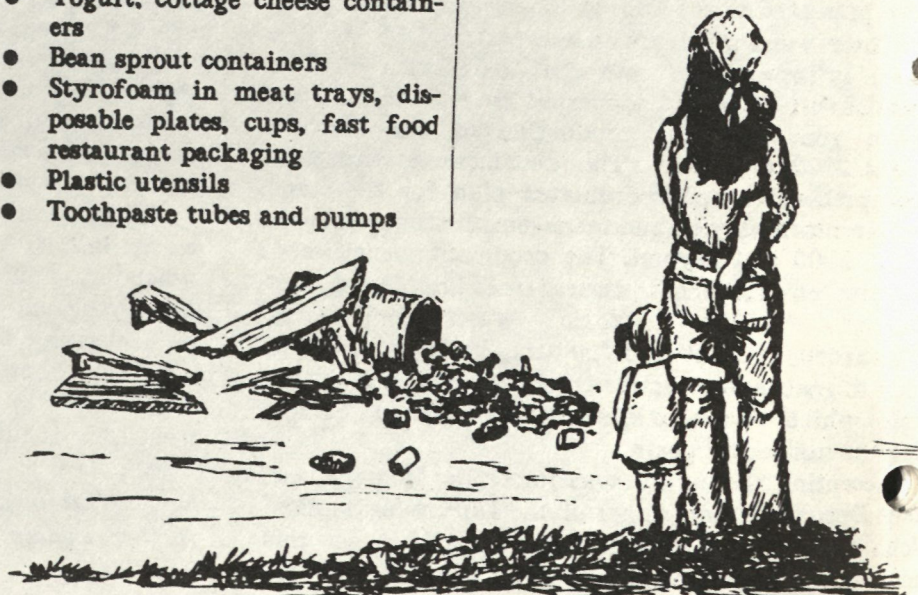
- Dishwashing liquid bottles
- Household cleanser bottles
- Plastic wrap
- Plastic sandwich, storage, shopping, bread, and garbage bags
- Frozen vegetable bags
- Make-up and aftershave containers
- Pill bottles
- Yogurt, cottage cheese containers
- Bean sprout containers
- Styrofoam in meat trays, disposable plates, cups, fast food restaurant packaging
- Plastic utensils
- Toothpaste tubes and pumps

Other:

- Kitty litter (might be composted)
- Food waste (vector problems if composted)
- Unserviceable clothing
- Unserviceable household products like rugs, nonmetal furniture
- Pantyhose

4. Materials which cannot be marketed on regular basis

- Ceramics like Lancer's bottles and flower pots
- Tires — small quantities can be used on playgrounds. Removal of steel from belted tires is a problem.
- Highly colored cereal boxes, tissue boxes, envelopes with glue or plastic tape, i.e., mixed paper products which cannot be used directly for new newsprint or corrugated box production.
- Scrap metal — with low steel production in the U.S. the market for scrap metal is limited. Landfills all over the state are stockpiling scrap metal awaiting market improvement. ■



The Bulletin Board

Lecture Programs

The following events are scheduled at the James L. Goodwin Forest and Park Center, located at 16 Meriden Road (Route 66) on the Middlefield/Middletown border (one quarter mile east of the Routes 66-217 intersection).

Thursday, March 19, 7:30 p.m. Traprock Ridges of Connecticut: Exploration of the geology, ecology, and human history of the traprock ridges of Connecticut. Speaker: Cara Lee, author of *West Rock to the Barndoor Hills: The Traprock Ridges of Connecticut*, a project supported by The Nature Conservancy and Yale School of Forestry.

Sunday, March 29, 2 p.m. Native Shrubs: An introduction to some of the beautiful and useful native shrubs of Connecticut, including our alluring azaleas, rhododendrons, and laurels. Discussion will cover ways of using native shrubs in your home landscape. Speaker: Sally Taylor, Professor of Botany, Connecticut College and Research Associate, Connecticut Arboretum.

Programs are free of charge. For more information, contact Linda Rapp at 346-2372. ■

New Groundwater Map

A new map prepared by the U.S. Geological Survey, Department of Interior, and published by the Connecticut DEP shows more than 160 stratified-drift areas. The groundwater yields of these areas range from a few thousand to several million gallons per day.

Three general evaluation techniques are used to determine yields for each of the aquifer areas: (1) simplified analytical formulae; (2) analytical groundwater models; and (3) digital groundwater models. The map also shows estimates of the amounts of streamflow entering

the aquifer areas under low-flow conditions, and indicates the sources of the hydrogeologic data that were used in its preparation.

Titled, *Groundwater Yields for Selected Stratified-drift Areas in Connecticut*, the four-color map was prepared by David L. Mazzaferro of the U.S. Geological Survey in cooperation with the DEP's Natural Resources Center.

The map is available, as a Connecticut Natural Resources Atlas Series map, from the Natural Resources Center, Maps and Publication Sales, 165 Capitol Avenue, Room 555, Hartford, CT 06106; Telephone (203) 566-7719. The cost is \$10.00, plus 7.5 percent sales tax. If purchased through the mail, there is a \$2.00 handling fee. Copies are available for inspection at the U.S. Geological Survey Office, Federal Building, 450 Main Street, Room 525, Hartford, CT 06103. ■

"Connecticut Is"

Connecticut Is . . . , a half-hour film produced by United Technologies' Norden Systems, Inc., takes viewers on a colorful tour of the state, showing scenery, history, industry, and recreational opportunities.

Made as a 350th anniversary tribute to the state, the film was shot over a period of a year, covering all four seasons.

Executive producer for Norden Systems was Paul Burton, Vice President, Public Relations, who worked with the state Department of Economic Development on planning and arrangements. He said the crew covered 180 locations, traveling more than 12,000 miles during the filming.

In introducing the film, Governor O'Neill noted that it will be used by the Department of Economic Development in promoting the state, but more importantly, it will be available to schools and other institutions, companies, and civic groups at no charge.

"This film captures the classic look and feel of Connecticut, and reinforces that pride we all have in our state," O'Neill said. "In just 30 minutes, it manages to sum up the elements, both tangible and intangible, that make up the quality of life for which Connecticut is famous."

The motion picture is available on 16mm film, and also on videotape, both half-inch and three-quarter-inch. To borrow the film, please contact the Connecticut Department of Economic Development, 210 Washington Street, Hartford 06106, or phone 566-3948. ■

Environmental Fellowship

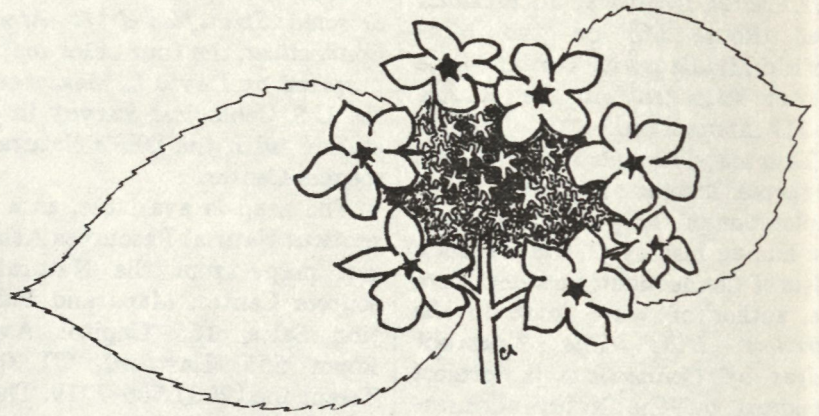
The German Marshall Fund, in cooperation with the Institute for European Environmental Policy, is offering short-term fellowships for American environmentalists interested in gaining firsthand knowledge of selected environmental policies of European countries. Fellows will spend up to two months in two or three European countries, under the guidance of the Institute's staff in Bonn, London, and Paris. They will examine specific issues of environmental policy-making which are of direct relevance to their work in the United States. Up to seven fellowships will be awarded during 1987/88.

For further information, please contact Marianne Lais Ginsburg, Program Officer, The German Marshall Fund of the United States, 11 Dupont Circle, N.W., Suite 750, Washington, D.C. 20036 (202/745-3950). ■



Getting to Know the Viburnums

by
Gale W. Carter
Drawings by
Caryn Alleva



Hobblebush

Viburnums are among the commonest shrubs that grow wild in our natural environment. They have colorful common names, such as possum haw, nannyberry, and withrod.

Viburnums belong to the honeysuckle family which includes, besides the many species of honeysuckle, the elderberries and the common ornamental shrub, weigela.

Some of the characteristics that help to identify a viburnum are opposite leaves, a berry-like fruit with a single flat seed, and tiny flat-topped flower clusters that are usually white. One of the features of a viburnum that varies considerably from one species to another is the shape of the leaf. The leaves of some species resemble maple leaves, while others are heart-shaped or elliptical. The leaf margins may have conspicuous teeth or, in some species, teeth may

be absent altogether.

During the winter months, the best field characteristic for identification is the way in which the winter buds differ. Let's consider a number of the common species that are found growing wild in Connecticut.

Mapleleaf viburnum (*Viburnum acerifolium*) is sometimes called dockmackie. The genus name *acerifolium* means "with maple-like leaves." Specifically, the leaves resemble those of the red maple. This species is commonly found in rocky or dry oak woods where it grows as an understory shrub.

The flowers blossom from May to June, the flat-top cluster consisting entirely of tiny, fertile, white flowers. The fruit is blue-black, appearing from late July to mid-winter.

Present on the velvety, grayish brown twigs are the winter buds. They have more than two bud

scales (visible with a lens). This is the only lobe-leaved viburnum to have this characteristic.

The names cranberry viburnum or highbush cranberry (*Viburnum trilobum*) seem appropriate for this species, to avoid confusion with true cranberries. True cranberries are low-growing, creeping plants.

Trilobum, the genus name, refers to the leaves which have three lobes. In this one respect it resembles the mapleleaf viburnum. Unlike mapleleaf viburnum, however, it has large sterile flowers growing around the margin of the fertile flower cluster. The flowers appear from May to July.

Its fruit is brilliant red, contrasted with the blue-black color of many viburnums. The fruiting period is from August to October. Its winter buds are plump and appear in the axils of the leaves. The buds have only two scales.

Cranberry viburnum closely resembles the European cranberry, often called the Guelder rose

(*Viburnum* *ous*). The latter species is grown as an ornamental but occasionally escapes into the wild. The leaves of the European cranberry are more rounded and its fruit is sometimes bitter. Both species have a pair of glands on their leafstalk. On cranberry viburnum, the top of the glands are dome-shaped, while the glands on the Guelder rose have saucer-shaped tops.

Hobblebush, or trip-toe (*Viburnum alni-folium*), is a straggling shrub with flexible branches. These branches often bend over to the ground, and then take root. The loops so formed can easily trip the unwary hiker — hence, one reason for its common name.

This viburnum grows in moist woods, cool ravines, and along the shores of ponds and streams.

Hobblebush has large, heart-shaped leaves. It is the only native viburnum in our area with this characteristic.

Its flowers are white, rarely pink, and, like the cranberry viburnum and Guelder rose, it has large sterile marginal flowers. The fertile flowers are in the center. Blooming time is from May to June.

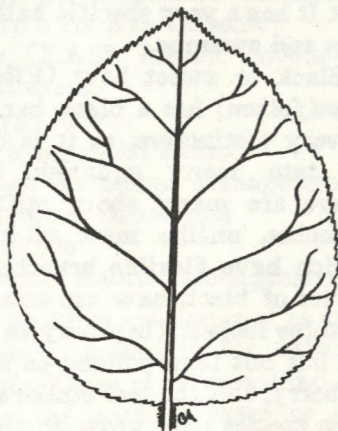
The fruit appears from August to October. It is bright scarlet at first and later changes to a dark purple. The seeds have a single groove.



Cranberry Viburnum
(lobed leaves)

The leaf buds in winter are large, rusty brown, and hairy, with scale-like particles. There are no protective scales.

The common name of the shrub northern arrowwood (*Viburnum recognitum*) refers to the straightness of the stems. This characteristic led the Indians to use the shoots for making the shafts of their arrows. The northern arrowwood grows as a shrub to a height of up to 15 feet. It may grow singly or in thickets.



Hobblebush
(heart-shaped leaves)

Both northern and southern arrowwood are found in New England. They have ranges that overlap in southern New England.

The common species in Connecticut is the northern arrowwood. This shrub has hairless twigs that may be somewhat angular. Southern arrowwood has hairy leaves and its twigs are not ridged.

Both species grow where the soil is moist. Common sites are along ponds and streams and in damp woods.

The leaves of northern arrowwood are coarsely toothed. They are hairy only on the veins on the underside of the leaf.

The flowers bloom from June to August and consist of fertile flow-



Nannyberry
(fine-toothed leaves)

ers only. The fruiting period is from late August to November. Its blackish fruit has seeds that are grooved.

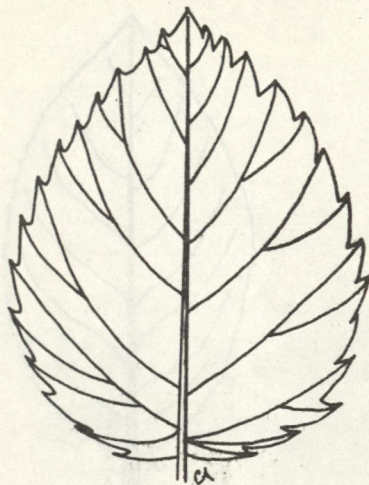
The winter buds have four scales that are closely pressed together. Its lower scales may be half as long as the bud.

Nannyberry, or sweet viburnum (*Viburnum lentago*), is one of the larger viburnums that may grow as a small tree up to 30 feet. It grows along forest edges, on rocky hillsides, and beside streams and swamps. This species of viburnum is often used as an ornamental in parks and gardens.

The elliptical leaves of nannyberry come abruptly to a point. Its leaf-stalk is usually winged with a wavy margin. The leaf margin is fine-toothed.

Its bark is brown with a skunk-like odor and the wood has a rancid smell. Nannyberry has white flowers in flat-topped clusters consisting entirely of fertile flowers. The flowering period is from April to June.

The blue-black fruit is nipple-tipped, fruiting between August and October. The fruit is edible, but the seeds have a disagree-



Northern Arrowwood
(coarse-toothed leaves)

able taste. The smooth gray winter buds are slender and pointed and have two bud scales.

The viburnums discussed to this point are reasonably easy to distinguish, with the exception of nannyberry. This species and several other native viburnums resemble each other more closely.

They all have egg-shaped leaves which may have fine-toothed margins. Their winter buds are also similar because they all have two scales that protect the bud.

However, each of these viburnums has its own specific combination of characteristics which help in identification.

Withrod, or northern wild raisin (*Viburnum cassinoides*), has two- to five-inch leaves that are seldom fine-toothed. The margin, when not toothed, may be somewhat wavy. The end of the leaf may have a short tip. Its winter buds, both leaf and flower buds, have yellow to brown scales. The larger flower buds have scales that do not completely enclose the bud. Withrod, perhaps more than any other species, can be easily confused with nannyberry. Although this species may occasionally grow as a small tree up to 30 feet, it is usually

shrub-size. Its two- to five-inch leaves are regularly fine-toothed and often long-tipped. The winter buds have gray to brown scales. The larger winter buds and the flower buds are completely covered by two scales.

Possum haw, or swamp haw (*Viburnum nudum*), has rather leathery leaves that grow up to six inches. Both leaves and twigs are shiny. The leaf margin is regularly wavy-edged and often rolled in. It is only occasionally fine-toothed. Its fruit, unlike that of nannyberry, black haw, and withrod, may be bitter. Possum haw often grows as a shrub, but may reach a height of 20 feet. It has a very specific habitat in bogs and swamps.

Black or sweet haw (*Viburnum prunifolium*) has a black bark that is very distinctive, as it is broken up into many squarish blocks. There are many short, stiff, side branches, unlike most viburnums which have flexible branches. The leaves of black haw are small, one to three inches. They may be pointed, but not long-pointed as in nannyberry, and the leaf stalks are red. This species may grow to tree size, up to 30 feet.

Viburnums have many medicinal uses. A tea made from the bark of nannyberry was used as a diuretic. The crushed leaves of hobblebush, rubbed on the hand, may be used as a treatment for migraine headache. The leaves of mapleleaf viburnum were used to relieve the inflammation of tumors, and the inner bark produced a tea used in the treatment of colic or cramps or, when mixed with the bark of alder, as an emetic. An extract from the bark of cranberry viburnum has been used for treating rheumatism. The juice of steeped cranberry leaves was used as a treatment for swollen glands and was valuable for many forms of uterine disorder. Black haw has been used as a source of a nerve ton-

ic. Also, the Indians used the bark for smoking and as a treatment for cases of threatened miscarriage.

Nearly 30 species of birds make some use of the fruit of viburnums, particularly during the winter months. The size of the seeds of viburnums makes them a good source of grit for the gizzards of song birds.

Viburnums are a preferred food for ruffed grouse, brown thrashers, and cedar waxwings. A number of birds use viburnums for cover and a few as nesting sites.

Small mammals, such as raccoons, rabbits, foxes, skunks, squirrels, and chipmunks feed on the fruit. White-tailed deer browse on the foliage.

Historically, the flexible twigs of viburnums were used in many ways. They were valuable for arrow shafts (arrowwood); for withes for binding things together (withrod); to hobble animals (hobblebush); and for whips and switches.

The fruits of some of the viburnums (nannyberry, withrod, and black haw) were eaten dry, like raisins, by country people. The fruit of cranberry viburnum is edible, but tart. It is still used for making preserves and jelly and as a substitute for true cranberry sauce. Jelly is also made from the fruit of nannyberry. It is best when some tart fruit is added.



A Viburnum Flower

Toward the Classroom

Learning to Think

by

Martina Delaney

Environmental Education
Coordinator

A prominent man once attributed his success to the fact that, while most people never had even one original thought, he had had two. This may illustrate the concern of many educators: How do you teach a child not just to remember information, but to fit the pieces together in novel and productive ways? How do you teach a child to use "critical thinking skills?"

The National Wildlife Federation has published a series of environmental education booklets designed to help middle/junior high school teachers and students become actively involved in "critical thinking" through community environmental projects. The CLASS Project, an acronym for Conservation Learning Activities in Science and Social Studies, was specifically designed to help students develop and practice the skills of observing,

measuring, collecting data, classifying, hypothesizing, predicting, making value judgements, communicating, and problem solving. The program specifically addresses environmental matters, but it is clear that the skills developed here have wide application.

The CLASS Project reflects the belief that students do not often see the connection between the knowledge they gain in the classroom and its actual, real-life application. The material is designed to help sixth through ninth graders understand their own roles as citizens.

The CLASS Project covers six content areas:

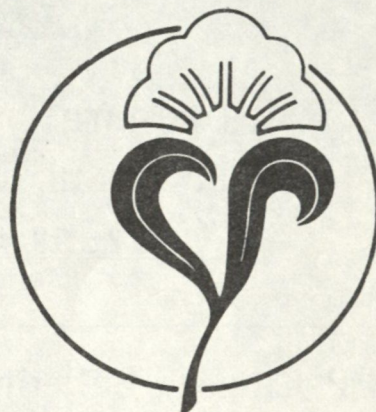
- Energy Use
- Environmental Issues
- Forest/Watershed Management
- Hazardous Substances
- Wetlands
- Wildlife Habitat Management

The booklets are designed as supplementary materials for existing curricula. There is no prescribed order for the content areas or for many of the topics covered. The

Federation has tried to make the materials as "hands-on" as possible, reducing lecture time and increasing the time students are actively involved in learning.

The DEP has been designated as Connecticut's coordinator to disseminate this material. The cost for the loose-leaf binder is \$6.00, including postage. This must be pre-paid. Please send checks to DEP, Information and Education Unit, 165 Capitol Avenue, Hartford, CT 06106, Attn: Martina Delaney. Checks should be made out to DEP.

When enough teachers are on our list, a workshop on the CLASS Project will be offered. ■



Know Your Snakes



Of all the species of plants and animals that live in Connecticut, the snakes are among the most fascinating. They elicit a response from everyone, ranging from unreasoning fear and horror to affection and total absorption. The negative reactions of many people are offset by the enthusiasm of others. They are, once one comes to understand them, creatures of great beauty. If treated with respect and understanding, they are not a danger. Without them, Connecticut would be a lesser place.

Connecticut's Venomous Snakes, a publication much in demand and recently reprinted by the DEP's Natural Resources Center, will allow you to recognize our venomous

species and to distinguish them from similar nonvenomous species. It discusses habits, habitats, status, conservation necessity — in short, all the things one wishes to know about these wonderful animals.

Connecticut's Venomous Snakes may be purchased at \$5.00 per copy (Connecticut residents add 7.5 percent sales tax) from the Natural Resources Center, Publication Sales, Room 555, Hartford 06106 (phone: 203-566-7719). For mail orders, please add \$2.00 for handling. Make checks payable to DEP Publications. ■

Endnote

"Why is there Something rather than Nothing?"

Martin Heidegger



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